<u>Amendments to the Claims</u>:

This listing of claims will replace all prior versions, and listings, of claims in the application:

<u>Listing of Claims:</u>

1. (Currently amended): A light generation device comprising:

a conducting substrate;

a lower electrode formed on said substrate;

a triangle mesa structure having an optical cavity formed on said substrate for lateral light confinement wherein said mesa structure is one selected from the group consisting of a triangle and a truncated triangle mesa structure; wherein said triangle mesa structure further comprises:

an active layer;

a lower conducting mirror and an upper conducting mirror for vertical light confinement;

a contact layer formed on said upper conducting mirror; and

a metallic contact formed on said contact layer<u>; and</u>

<u>a sidewall deflector having an optical grating on said substrate</u>.

2. (Original): The device of claim 1 wherein: said lower conducting mirror is one selected from the group consisting of an n-type AlGaAs, InGaAsP and AlGaN semiconductor superlattice; and said upper conducting mirror is one selected from the group consisting of a p-type AlGaAs, InGaAsP and AlGaN semiconductor superlattice.

3. (Original): The device of claim 1 wherein light is generated in said active layer that is vertically output through said metallic contact as a result of applying an electrical current through said metallic contact which is linked to said contact layer, said lower electrode, said lower mirror and said conducting substrate.

4. (Original): The device of claim 1 wherein said active layer is made from one selected from the group consisting of a double heterostructure, a single quantum well (SQW), a multiple quantum well (MQW) and a current asymmetric resonance tunneling structure.

5. (Original): The device of claim 1 wherein: said substrate is a conducting n-GaAs substrate; said optical cavity is a GaAs optical cavity; said active layer is one selected from the group consisting of InGaAs/GaAlAs double heterostructure, InGaAs/GaAlAs single quantum well, InGaAs/GaAIAs multiple

quantum wells, and a current asymmetric resonance tunnelling structure; said lower conducting mirror is made of an n-type AlGaAs superlattice; said upper conducting mirror is made of a p-type AlGaAs superlattice; and said upper contact layer is made of a p-type AlGaAs layer; wherein said metallic contact is semitransparent.

6. (Original): The device of claim 1 wherein: said substrate is a conducting n-lnP substrate; said optical cavity is one selected from said group consisting of an InGaAsP optical cavity and an AlGaAsSb optical cavity; said active layer is one selected from the group consisting of InGaAsP/InGaAsP double heterostructure, InGaAsP/InGaAsP single quantum well, InGaAsP/InGaAsP multiple quantum wells, and a current asymmetric resonance tunnelling structure; said lower conducting mirror is one selected from the group consisting of an n-type InGaAsP/InGaAsP superlattice and an n-type AlGaPSb/AlGaPSb superlattice; said upper conducting mirror is one selected from the group consisting of a p-type InGaAsP/InGaAsP superlattice and a p-type AlGaPSb/AlGaPSb superlattice; and said upper contact layer is made of a p-type InP cladding layer; wherein said metallic contact is semitransparent.

7. (Original): The device of claim 1 wherein: said substrate is a conducting n-GaAs substrate; said optical cavity is a GaAs optical cavity; said active layer is one selected from the group consisting of a GaAsSb/GaAlAs double heterostructure, InGaAsN/GaAlAs double heterostructure, GaAsSb/GaAlAs single quantum well, InGaAsN/GaAlAs single quantum well, GaAsSb/GaAlAs multiple quantum wells, InGaAsN/GaAlAs multiple quantum wells, and a current asymmetric resonance tunnelling structure; said lower conducting mirror is made of an n-type AlGaAs superlattice; said upper conducting mirror is made of a p-type AlGaAs superlattice; and said upper contact layer is made of a p-type AlGaAs layer; wherein said metallic contact is semitransparent.

8. (Cancelled):

9. (Original): The device of claim 1 further comprising a cladding layer wherein said lower conducting mirror serves as an interface between said optical cavity and said cladding layer, and said upper conducting mirror serves as an interface between said optical cavity and said contact layer.

10. (Original): The device of claim 9 wherein said cladding layer is one selected from the group consisting of an n-type AlGaAs layer and an n-type

AlGaInP layer.

11. (Original): The device of claim 1 wherein said conducting substrate is one selected from the group consisting of n-GaAs, n-lnP, n-SiC and sapphire.

12. (Original): The device of claim 1 further comprising a buffer layer made of BAlGaInN between said substrate and said triangle mesa structure.

13. (Original): The device of claim 12 further comprising a conducting n-GaN layer between said buffer layer and said triangle mesa structure.

14. (Original): The device of claim 13 wherein: said substrate is made of sapphire; said optical cavity is an InGaAlN optical cavity; said active layer is one selected from the group consisting of InGaN/InGaAlN double heterostructure, InGaN/InGaAlN single quantum well, InGaN/InGaAlN multiple quantum wells, and a current asymmetric resonance tunnelling structure; said lower conducting mirror is made of an n-type AlGaN superlattice; and said upper conducting mirror is made of a p-type AlGaN superlattice; wherein said metallic contact is semitransparent.

15. (Original): The device of claim 13 wherein: said substrate is made of a conducting n-SiC substrate; said optical cavity is an InGaAlN optical cavity; said active layer is one selected from the group consisting of InGaN/InGaAlN double heterostructure, InGaN/InGaAlN single quantum well, InGaN/InGaAlN multiple quantum wells, and a current asymmetric resonance tunnelling structure; said lower conducting mirror is made of an n-type AlGaN superlattice; and said upper conducting mirror is made of a p-type AlGaN superlattice; wherein said metallic contact is semitransparent.

16. (Original): The device of claim 1 further comprising: a buffer layer made of BAlGaInN on said substrate; a conducting n-GaN layer on said buffer layer; and a cladding layer between said conducting n-GaN layer and said triangle mesa structure; wherein said substrate is one selected from the group consisting of n-SiC and sapphire.

17. (Original): The device of claim 16 wherein: said optical cavity is an InGaAlN optical cavity; and said active layer is one selected from the group consisting of InGaN/InGaAlN double heterostructure, InGaN/InGaAlN single quantum well, InGaN/InGaAlN multiple quantum wells, and a current asymmetric resonance tunnelling structure; wherein said lower conducting mirror serves as an

interface between said optical cavity and said cladding layer, and said upper conducting mirror serves as an interface between said optical cavity and said contact layer.

18. (Currently amended): ~~The device of claim 1 further comprising~~

A light generation device comprising:

a conducting substrate;

a lower electrode formed on said substrate;

a triangle mesa structure having an optical cavity formed on said substrate for lateral light confinement wherein said mesa structure is one selected from the group consisting of a triangle and a truncated triangle mesa structure; wherein said triangle mesa structure further comprises:

an active layer;

a lower conducting mirror and an upper conducting mirror for vertical light confinement;

a contact layer formed on said upper conducting mirror; and

a metallic contact formed on said contact layer; and

a mirror sidewall deflector formed in or on said lower conducting mirror.